REMARKS

This application has been carefully reviewed in light of the Office Action dated March 26, 2004. Claims 1 to 40 are pending in the application, of which Claims 1, 9, 18, 27, 39 and 40 are independent claims. Reconsideration and further examination are respectfully requested.

In Applicants' response of July 28, 2003, Applicants made an election with traverse of Claims 1 to 17, 39 and 40 which allegedly belonged in class 400. Applicants' traversal was based in part on Applicants' belief that the claims of the present application belong in a single class; to wit, Class 358, because all the claims are directed to image rendering at a lower resolution. In the present Office action, the restriction requirement was made final because "searching both sets of claims would require searching by different Examiners which would pose a serious burden to the Patent Office." However, in the Office action, Claims 1 to 17, 39 and 40 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,727,137 (LeClair) which is classified in class 358. As the applied art belongs to class 358, and the withdrawn claims belong to class 358, Applicants submit that the Examiner has already preformed any searches necessary to examine Claims 18 to 38. Therefore, Applicants submit that the restriction requirement was improper and respectfully request reconsideration and withdrawal of same.

Claims 1 to 17, 39 and 40 are rejected under 35 U.S.C. § 102(b) as being anticipated by LeClair. Reconsideration and withdrawal of the rejection are respectfully requested.

The present invention is directed to using an output device to render an output image wherein the output device's pixel dimensions are smaller than the pixel dimensions of the output image. To do so, the output image is divided into a plurality of bands and each band is

divided into a plurality of sub-areas with each sub-area's pixel dimensions smaller than, or equal to, the output devices's pixel dimensions. Each of the bands are then output to the output device.

Turning now to the claims, amended independent Claim 1 is directed to a method of rendering an output image having first pixel dimensions on an output device having second pixel dimensions wherein the second pixel dimensions are smaller than the first pixel dimensions. The method starts by segmenting the output image into a plurality of bands. Each band is then segmented longitudinally into a plurality of sub-areas. Each sub-area has pixel dimensions smaller than or equal to the second pixel dimensions. Each sub-area is then rendered by the rendering device at pixel dimensions not more than the second pixel dimensions. The rendered sub-areas are then combined to form bands of the output image. Finally, the bands are output on the output device.

In contrast, LeClair discloses a system for rendering a print image using limited band memory. This is achieved by processing print image information before storing the information in the band memory. In particular, a page is first divided into a series of bands. A drawing command corresponding to a designated band is then rendered into a temporary buffer. To render the image, enhancement functions are performed on an object within the band, where the enhancement functions reduce the amount of memory required for processing (Column 6, lines 25 to 46).

LeClair does not relate to rendering an output image on an output device having first pixel dimensions using a rendering device capable of rendering at lower second pixel dimensions. LeClair renders the output image at the pixel dimensions specified by the print image information, and limits the memory requirements by dividing the image into bands. LeClair is not seen to disclose segmenting the bands longitudinally into a plurality of sub-areas,

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with each sub-area having pixel dimensions smaller than or equal to the second pixel dimensions, and rendering each sub-area at pixel dimensions not more than the second pixel dimensions. Furthermore, as LeClair does not disclose segmenting the bands into sub-areas, LeClair also does not disclose combining the rendered sub-areas to form a band of the output image.

Amended independent Claim 9 defines a method of rendering an output image on a raster scanned device at first pixel dimensions. The method starts by segmenting the output image into a plurality of bands, followed by segmenting the bands longitudinally into a plurality of sub-areas. The sub-areas have second pixel dimensions, which are smaller than the first pixel dimensions. Image data for the sub-areas is then sequentially rendered at the second pixel dimensions by a rendering device having the second pixel dimensions. The image data is transferred to a band buffer upon completion of rendering of each of the sub-areas and the image data is color converted to form raster data suitable for the raster scanned device. Upon all sub-areas of a current band being transferred into said band buffer, the raster data of the current band is transferred to the raster scanned device.

As noted above with regard to amended independent Claim 1, LeClair is not seen to disclose segmenting bands into sub-areas, with the sub-areas having second pixel dimensions, which are lower than the pixel dimensions of an output image to be rendered. In addition, LeClair does not disclose rendering image data for the sub-areas of the second pixel dimensions by a rendering device having the second pixel dimensions. As no sub-areas are disclosed, LeClair also does not disclose transferring image data of the sub-areas to a band buffer upon completion of rendering of each of the sub-areas.

Claims 18 and 27 are apparatus claims corresponding respectively to method Claims 1 and 9. Applicants submit that the above remarks in support of Claims 1 and 9 are equally applicable to Claims 18 and 27.

Amended independent Claims 39 and 40 are computer readable medium claims corresponding respectively to method Claims 1 and 9. Applicants submit that the above remarks in support of Claims 1 and 9 are equally applicable to claims 39 and 40.
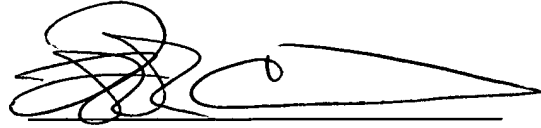
In view of the foregoing deficiencies of the applied art, amended independent Claims 1, 9, 18, 27, 39 and 40 and are believed to be allowable.

The other pending claims in this application are each dependent from the independent claims discussed above and are, therefore, believed allowable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each dependent claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, and no other matters being raised in the Office Action, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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